



An ecological time-series study of heat-related mortality in three European cities

Author(s): Ishigami A, Hajat S, Kovats RS, Bisanti L, Rognoni M, Russo A, Paldy A
Year: 2008
Journal: Environmental Health : A Global Access Science Source. 7 (5): [1-7]

Abstract:

BACKGROUND: Europe has experienced warmer summers in the past two decades and there is a need to describe the determinants of heat-related mortality to better inform public health activities during hot weather. We investigated the effect of high temperatures on daily mortality in three cities in Europe (Budapest, London, and Milan), using a standard approach. **METHODS:** An ecological time-series study of daily mortality was conducted in three cities using Poisson generalized linear models allowing for over-dispersion. Secular trends in mortality and seasonal confounding factors were controlled for using cubic smoothing splines of time. Heat exposure was modelled using average values of the temperature measure on the same day as death (lag 0) and the day before (lag 1). The heat effect was quantified assuming a linear increase in risk above a cut-point for each city. Socio-economic status indicators and census data were linked with mortality data for stratified analyses. **RESULTS:** The risk of heat-related death increased with age, and females had a greater risk than males in age groups \geq 65 years in London and Milan. The relative risks of mortality (per degrees C) above the heat cut-point by gender and age were: (i) Male 1.10 (95%CI: 1.07-1.12) and Female 1.07 (1.05-1.10) for 75-84 years, (ii) M 1.10 (1.06-1.14) and F 1.08 (1.06-1.11) for \geq 85 years in Budapest (\geq 20 degrees C); (i) M 1.03 (1.01-1.04) and F 1.07 (1.05-1.09), (ii) M 1.05 (1.03-1.07) and F 1.08 (1.07-1.10) in London (\geq 20 degrees C); and (i) M 1.08 (1.03-1.14) and F 1.20 (1.15-1.26), (ii) M 1.18 (1.11-1.26) and F 1.19 (1.15-1.24) in Milan (\geq 26 degrees C). Mortality from external causes increases at higher temperatures as well as that from respiratory and cardiovascular disease. There was no clear evidence of effect modification by socio-economic status in either Budapest or London, but there was a seemingly higher risk for affluent non-elderly adults in Milan. **CONCLUSION:** We found broadly consistent determinants (age, gender, and cause of death) of heat related mortality in three European cities using a standard approach. Our results are consistent with previous evidence for individual determinants, and also confirm the lack of a strong socio-economic gradient in heat health effects currently in Europe.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2266730>

Resource Description

Climate Change and Human Health Literature Portal

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Ozone, Particulate Matter

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Italy; England; Hungary

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Injury, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular disease mortality

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : respiratory disease mortality

Other Health Impact: heat related mortality

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified